Please note that the firm of Townsend and Townsend and Crew, LLP is not representing the Applicant in this response. The Applicant is therefore prosecuting this application pro se. Applicant has no formal training in patent prosecution and is inexperienced in formal maters pertaining to the format thereof. Applicant therefore respectfully requests examiner's assistance and suggestions regarding form of this response and the format of any beneficial modifications to put the form of this invention and claims in conformance with patent office rules and standards.

Applicant does not understand that the scope of the claims should be restricted in a manner to withdraw claims 13-20. If, upon reconsideration, the Examiner, nevertheless, maintains that this restriction is required to meet patent regulations, Applicant requests Examiner's guidance and assistance toward modifying the inventive subject claims 13-20 in a manner that the claimed substance is preserved and set forth in accordance with said regulations.

With respect to Claims 1-12, the Applicant has reviewed U.S. Patent 5,770,099 cited by the Examiner. Applicant observes that the '099 appears to teach temperature of an interior wall which scavenges an etching species. It is noted that the '099 also suggests an interior wall be maintained above a characteristic deposition temperature and that the temperature of said wall (Fig. 1, Fig. 4) may vary in an uncontrolled manner during the processing of substrates (Col. 2, lines 18-32). The '099 makes reference to side walls which change temperature. Applicant recognizes that this terminology can be confusing since the term "side wall" is often used to denote the generally vertical face of a feature which is being etched into a film on a workpiece. However, the Applicant respectfully points out that the '099 uses the term "side wall" to make reference to a (quartz) wall of a plasma processing chamber that has no contact with the workpiece. Furthermore, the '099 makes reference to a polymer film which is comprised of species formed from a gas which is introduced into a plasma etch reactor. On the contrary, the Applicant's invention refers to a film which is introduced into a chamber on a workpiece. The Applicant's invention claims *placing a substrate having a film thereon* on a substrate holder in a chamber and etching a first portion *of said film* at a first temperature and performing a second etching of said film at a second temperature , among other elements.

Applicant respectfully observes that the '099 teaches maintaining temperature of an interior wall (quartz or other materials) of a plasma etching chamber for the purpose of controlling the condensation of a polymer which is comprised or plasma species. The Applicant

respectfully notes that the '099 does not teach a temperature *of the workpiece* nor does it teach performing a first etching of a first portion of said film (e.g. thereon a substrate which is placed in a chamber) at a first temperature in combination with performing a second etching of a second portion of said film at a second temperature, in the manner claimed. Applicant respectfully observes that conventional practice is to maintain the temperature of a substrate workpiece at a desired temperature during processing. This is often achieved at least in part by coupling heating and/or cooling means embedded in a chuck which supports the workpiece (e.g. the cathode assembly referred to in Col. 3, lines 45-47 of the '099) in combination with workpiece and/or chuck temperature sensing and controlling means . A workpiece is conventionally maintained in close thermal contact with a chuck supporting surface by means such as an electrostatic chuck or a pressure of backside helium or other gas. In fact the '099 teaches that various parts of a plasma chamber may comprise a plurality of temperatures during etching, while it fails to teach any temperature of the substrate or of the substrate holder in the manner claimed by the present invention. Respectfully, the Applicant also observes that the '099 does not teach thermal characteristics of a substrate holder in the manner claimed by the present invention nor does it teach thermal characteristics of a substrate holder in combination with performing a first etching of a film at a first temperature and performing a second etching of said film at a second substrate temperature, said temperatures being distinct. Accordingly, claims 1-12 are patentable over the 099 patent.

With respect to claims 13-20, the Applicant respectfully asserts that the '099 does not teach a substrate holder which allows for a change from a first temperature to a second temperature within a characteristic time period to process a film as claimed. Accordingly, claims 13-20 are patentable over the '099 patent as well.

CONCLUSION

Therefore, in view of the remarks above, Applicant respectfully requests that the rejection be removed, that claims 1-12 and 13-20 be allowed, and the case passed to issue. The issuance of a formal Notice of Allowance at an early date is respectfully requested.

If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at (925) 947-1909.

Respectfully submitted,

Date: September 5, 2000

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APPENDIX

1. A method of etching a substrate in the manufacture of a device, said method comprising steps of:

placing a substrate having a film thereon on a substrate holder in a chamber, said substrate holder having a selected thermal mass; and

performing a first etching of a first portion of said film at a first temperature and performing a second etching of a second portion of said film at a second temperature, said first temperature being different from said second temperature;

wherein said selected thermal mass allows a change from said first temperature to said second temperature within a characteristic time period to process said film.

2. The method of claim 1 wherein said first temperature is changed to said second temperature by a heat transfer means coupled to said substrate holder.

3. The method of claim 1 wherein said change in temperature is an in-situ process during said first etching step and said second etching step.

4. The method of claim 1 wherein said first etching and said second etching are conducted in a substantially constant plasma environment.

5. The method of claim 1 wherein said first temperature is higher than said second temperature.

6. The method of claim 1 wherein said first temperature is lower than said second temperature.

7. The method of claim 1 wherein said first etching comprises radiation.

8. The method of claim 1 wherein said second etching comprises radiation.

9. The method of claim 1 wherein said first etching is an ion bombardment aided process.

10. The method of claim 1 wherein said second etching is an ion bombardment aided process.

11. The method of claim 1 wherein said first portion of said film is etched before said second portion of said film.

12. The method of claim 1 wherein said second portion of said film is etched before said first portion of said film.

13. Apparatus for etching a substrate in the manufacture of a device, said apparatus comprising:

a chamber;

a substrate holder disposed in said chamber, said substrate holder having a selected thermal mass;

wherein said selected thermal mass of said substrate holder allows for a change from a first temperature to a second temperature within a characteristic time period to process a film.

14. Apparatus of claim 13 further comprising a heat transfer means for changing said first temperature to said second temperature, said heat transfer means being coupled to said substrate holder.

15. Apparatus of claim 13 wherein said change in temperature is an in-situ process within said characteristic time.

16. Apparatus of claim 13 wherein said chamber provides a substantially constant plasma environment.

17. Apparatus of claim 13 wherein said first temperature is higher than said second temperature.

18. Apparatus of claim 13 wherein said first temperature is lower than said second temperature.

19. Apparatus of claim 13 wherein said chamber provides radiation.

20. Apparatus of claim 13 wherein said chamber provides an ion bombardment aided process.